IJAAR PUBLISHING®

Global Journal of Artificial Intelligence and Technology Development | ISSN: 3027-0502
Vol. 3, Issue 2 (2025) | www.ijaar.org

EFFECT OF FINTECH ON ECONOMIC EMPOWERMENT AND FINANCIAL LITERACY IN RURAL NIGERIA

Onah, Kelvin Amobi
Department of Accountancy, Faculty of Business Administration,
University of Nigeria, Enugu Campus, Nigeria

Geoffrey Ndubuisi Udefi, Ph.D.
Department of Accountancy, Faculty of Management Sciences, Alex Ekwueme Federal University Ndufu-Alike (AE-FUNAI), Ebonyi State, Nigeria.

Ojeh Augustine, Ph.D., FCA
Department of Accountancy, Faculty of Management Sciences, Enugu State University of Science and Technology ESUT, Enugu State, Nigeria.

Festus Ndubuisi Nkwo
Department of Accountancy, Gregory University Uturu, Abia State, Nigeria.

Abstract

This study examined the effect of FINTECH adoption on economic empowerment and financial literacy among rural populations in Nigeria, focusing on rural communities within Nsukka Local Government Area of Enugu State. Survey data collected from 370 respondents revealed that 52.7% use FINTECH services on a weekly or daily basis, indicating moderate to high adoption. Most respondents reported improvements in economic empowerment, with 63.5% noting moderate to significant enhancement in managing income. Similarly, 62% experienced moderate to great improvement in financial literacy since adopting FINTECH. However, barriers such as poor internet connectivity (35.14%), limited knowledge (29.73%), and high transaction costs (16.22%) were significant challenges to effective FINTECH use. Respondents emphasized the need for more financial literacy training (37.84%) and better internet access (31.08%) to improve FINTECH utilization. These findings suggest that while FINTECH positively impacts rural economic and financial outcomes, addressing infrastructural and educational gaps is crucial to maximizing its benefits.

Keywords: *Fintech adoption, Economic empowerment, Financial literacy, Rural & Financial inclusion*

Onah, K. A., Udefi, G. N., Ojeh, A., & Nkwo, F. N. (2025). Effect of Fintech on Economic Empowerment and Financial Literacy in Rural Nigeria. *Global Journal of Artificial Intelligence and Technology Development. 3*(2), 26-44. DOI: https://doi.org/10.5281/zenodo.15723273

1. Introduction

The advent of financial technology (fintech) in Nigeria marks a critical shift in how financial services are delivered, particularly to underserved rural populations. Fintech encompasses mobile banking, digital credit platforms, and decentralized financial systems that aim to enhance accessibility and reduce transaction costs. In rural Nigeria, where traditional banking infrastructure remains limited, these innovations present opportunities to improve financial literacy and economically empower marginalized communities (Chukwu, Akunna, & Anaike, 2024).

Despite the potential, the rural-urban divide in financial access remains stark. According to the International Monetary Fund (2023), a significant portion of Nigeria's adult population—especially in rural areas—remains outside the formal financial system. Fintech innovations are being positioned as tools to overcome infrastructural barriers and foster inclusion through mobile money, agent banking, and blockchain-enabled remittances (IMF, 2023). Nwankwo and Ibrahim (2023) emphasized that fintech platforms have increased outreach to remote populations, contributing to higher account ownership and reduced informal financial dependency.

Economic empowerment through fintech is increasingly evident among women and youth in agriculture and small-scale businesses. U and E (2023), in a study on women agripreneurs in Southern Nigeria, found that access to digital financial products significantly enhanced income generation, investment, and savings habits. These outcomes illustrate how technology-enabled finance can promote entrepreneurship and reduce poverty in rural areas, provided the digital divide is addressed.

However, the uptake of fintech solutions is closely tied to financial literacy. Without sufficient knowledge, rural dwellers may struggle to engage effectively with digital platforms, thereby limiting the intended empowerment benefits. Chinasa and Julius (2023) found a strong correlation between mobile banking usage and financial literacy levels in South-South Nigeria. Their research suggests that targeted education initiatives are vital for improving user confidence and expanding fintech adoption.

Nevertheless, challenges such as poor internet connectivity, low digital skills, and policy limitations continue to impede progress. Chukwu et al. (2024) highlighted the need for a supportive regulatory framework and public-private collaboration to ensure sustainability and security in fintech operations. In response to these limitations, grassroots initiatives like Tech Herfrica have emerged to promote financial and digital inclusion among rural women, offering training and digital tools to navigate fintech platforms confidently (Tech Herfrica, 2023). Moreover, such efforts align with broader national strategies to boost financial resilience and inclusion.

Statement of the Problem

Ideally, financial technology (fintech) should function as a transformative tool for promoting equal access to financial services across all regions. In rural Nigeria, it is expected to foster financial inclusion, improve financial literacy, and empower individuals economically by providing convenient, affordable, and secure digital financial solutions. With the availability of mobile banking, digital payment systems, and agent banking, rural dwellers should be actively participating in the formal financial ecosystem and benefiting from its opportunities.

However, a large segment of the rural population in Nigeria remains financially excluded despite the growth of fintech. Barriers such as low digital literacy, limited infrastructure, lack of awareness, and mistrust of technology continue to hinder widespread adoption. Many rural residents are unable to effectively utilize fintech platforms or remain unaware of the financial

tools available to them. As a result, the transformative impact of fintech on rural economic empowerment and financial capability remains limited and uneven.

If these issues are not addressed, the gap between urban and rural populations will continue to widen. Rural communities may remain trapped in cycles of poverty, with limited access to formal savings, credit, or investment opportunities. The continued exclusion from digital financial systems may hinder entrepreneurship, reduce economic resilience, and limit the broader national goals of inclusive growth and financial equity. This persistent disparity could also weaken the country's overall financial development and economic stability over time.

Objectives of the Study

The primary purpose of this study is on effect of fintech on economic empowerment and financial literacy in rural Nigeria**.** The specific objectives of the study are to:

i. To examine the extent to which fintech adoption influences economic empowerment among rural populations in Nigeria.
ii. To assess the impact of fintech usage on the level of financial literacy among rural dwellers in Nigeria.
iii. To identify the key barriers affecting the effective utilization of fintech for promoting financial inclusion and literacy in rural Nigeria.

Research Questions

The study provided answers to the following research questions.

i. To what extent does fintech adoption influence economic empowerment in rural areas of Nigeria?
ii. How does the use of fintech affect financial literacy levels among rural dwellers in Nigeria?
iii. What are the major barriers hindering the effective use of fintech for financial inclusion and literacy in rural Nigeria?

Statement of Hypotheses

The following hypotheses in null form (H_0) guided this study

i. Fintech adoption has no significant effect on economic empowerment in rural Nigeria.
ii. Fintech usage does not significantly influence the level of financial literacy among rural dwellers in Nigeria.
iii. There is no significant relationship between identified barriers and the effective utilization of fintech in rural Nigeria.

Definition of Terms

The following terms operationalized the study:

i. **Fintech (Financial Technology):** Refers to the use of innovative digital technologies such as mobile applications, online banking platforms, and electronic payment systems that facilitate financial transactions and services efficiently and cost-effectively, especially in areas with limited traditional banking infrastructure.
ii. **Economic Empowerment:** The process through which rural individuals and households increase their economic opportunities, improve income generation, gain access to financial resources, and achieve greater control over their economic decisions and livelihoods.

iii. **Financial Literacy:** The ability of individuals to acquire, understand, and effectively use financial information and skills to make sound decisions about budgeting, saving, investing, and managing credit.
iv. **Rural Nigeria:** Geographical locations in Nigeria characterized by sparse population density, limited access to infrastructure and services, predominantly agricultural-based economies, and limited penetration of formal financial institutions.
v. **Financial Inclusion:** Efforts and processes aimed at ensuring that individuals and businesses in rural areas have access to useful and affordable financial products and services such as banking, insurance, and credit, delivered in a responsible and sustainable manner.
vi. **Mobile Banking**: The provision of banking services via mobile phones, allowing users to conduct transactions such as money transfers, bill payments, and account management remotely without the need to visit physical bank branches.
vii. **Barriers to Fintech Adoption:** Factors that hinder rural populations from effectively using fintech services, including poor internet connectivity, low digital literacy, lack of trust in technology, high costs, and cultural resistance.
viii. **Digital Financial Services (DFS):** Financial services offered through digital platforms, including mobile money, electronic wallets, agent banking, and online financial products, enabling broader reach especially in underserved rural communities.
ix. **Economic Development**: The overall improvement in economic conditions of rural areas, marked by increased employment opportunities, higher incomes, better infrastructure, and improved standards of living.
x. **Financial Inclusion Programs:** Targeted interventions by governments, financial institutions, or development agencies designed to promote the use of formal financial services by underserved rural populations, through awareness campaigns, digital literacy training, and infrastructure development.

2. Literature review

Conceptual Review

Concept of Fintech Adoption

Fintech adoption refers to the willingness and actual use of financial technologies by individuals, firms, or institutions to perform financial transactions or access financial services more efficiently. The concept is grounded in technology acceptance theories, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB), which posit that behavioral intentions, social influence, and facilitating conditions significantly shape user decisions (Pham & Ho, 2022). Fintech adoption has gained traction due to its potential to transform traditional financial systems by offering accessible, affordable, and innovative services, especially in underbanked regions (Arner et al., 2020).

Trust and perceived risk are essential considerations in the adoption process. Consumers are more inclined to adopt fintech services when they perceive the platforms as secure, private, and legally protected. Trust serves as a mediator between perceived risk and behavioral intention, reducing uncertainty about the digital financial environment. In the context of emerging markets, fintech offers solutions that overcome traditional barriers to banking, but the adoption is often moderated by factors such as digital literacy and regulatory clarity (Boukis, 2019).

Moreover, user experience, including performance expectancy and ease of use, influences the acceptance of fintech platforms. For instance, in Sub-Saharan Africa, users prioritize mobile fintech platforms that offer convenience, fast transactions, and low costs (Osei-Assibey et al.,

2024). The social environment also plays a significant role; peer influence and societal norms can drive or discourage fintech usage depending on communal perceptions (Fanta &Makina, 2019). Companies, particularly small and medium enterprises (SMEs), are also engaging with fintech to streamline operations, access funding, and digitize financial workflows.

Institutional and infrastructural support further affect fintech adoption. Facilitating conditions such as mobile network coverage, internet access, government regulations, and financial education are vital enablers (Eyisi et al., 2023). Where these supports are weak, adoption tends to lag regardless of individual readiness. Importantly, network externalities can accelerate uptake: the more users within a system, the more valuable the technology becomes to others, promoting rapid diffusion. These interlinked factors highlight that fintech adoption is not merely a technological issue but a socio-economic and institutional process.

Furthermore, recent studies have demonstrated that fintech contributes significantly to financial inclusion and economic growth when adoption barriers are systematically addressed. Policy reforms, consumer protection laws, and investment in digital infrastructure are required to enhance adoption across different user segments. Thus, fintech adoption emerges as a crucial policy and business priority with the potential to reshape financial ecosystems globally.

Economic Empowerment

Economic empowerment refers to the process by which individuals and communities gain the ability to make economic decisions, access resources, and improve their economic status and well-being. This concept encompasses various dimensions, including financial inclusion, digital literacy, access to education, and participation in economic activities.

Financial inclusion plays a pivotal role in economic empowerment. For instance, a study in Nigeria's Federal Capital Territory found that access to microfinance banks, point-of-sale services, and mobile payment systems significantly enhanced women's economic empowerment by increasing their income and financial autonomy. Similarly, digital financial services have been shown to empower women domestic workers by providing financial security, privacy, and agency, thereby enhancing their participation in household and community decision-making (Amah et al., 2024).

Digital literacy is another critical factor. Research indicates that higher levels of digital literacy among marginalized communities, including women and low-income individuals, are associated with increased participation in financial inclusion, entrepreneurship, and online employment opportunities. This underscores the importance of ICT education initiatives in fostering economic empowerment.

Education, more broadly, is fundamental to economic empowerment. It equips individuals with the skills and knowledge necessary to engage in economic activities, innovate, and adapt to changing economic environments. Studies have shown that education enhances creativity, facilitates entrepreneurial endeavors, and is associated with higher rates of innovation and employment creation.

Economic empowerment also involves the implementation of targeted schemes and programs. In Tanzania, economic empowerment schemes providing start-up capital, financial literacy training, and business capacity building have significantly contributed to poverty reduction among youth and women groups (Mambosho et al., 2024). These initiatives highlight the effectiveness of structured support in enhancing economic outcomes for marginalized populations.

Therefore, economic empowerment is a multifaceted process that involves enhancing individuals' and communities' capacity to participate in and benefit from economic activities. It requires a combination of financial inclusion, digital literacy, education, and targeted support programs to address the diverse needs of different populations and promote inclusive economic growth.

Financial Literacy

Financial literacy is a multifaceted concept encompassing the knowledge, skills, attitudes, and behaviors necessary to make informed and effective financial decisions. It involves understanding financial concepts such as budgeting, saving, investing, and managing debt, enabling individuals to navigate the financial landscape confidently and responsibly.

The Organisation for Economic Co-operation and Development (OECD) defines financial literacy as "a combination of financial awareness, knowledge, skills, attitudes, and behaviors necessary to make sound financial decisions and ultimately achieve financial well-being" (OECD, 2023). This definition emphasizes that financial literacy extends beyond mere knowledge, incorporating the practical application of financial understanding in daily life. Similarly, Lusardi and Mitchell (2014) describe financial literacy as "people's ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt."

Empirical studies have demonstrated the significant impact of financial literacy on various aspects of individual and household financial behavior. For instance, Koomson et al. (2022) found that increased financial literacy is associated with a 6.9% decrease in poverty across Kenya, Tanzania, and Uganda, highlighting its role in enhancing financial inclusion and entrepreneurship. In the context of the informal sector in Zimbabwe, Sibanda et al. (2025) reported a positive correlation between financial literacy and savings behavior, indicating that individuals with higher financial literacy are more likely to engage in prudent financial practices.

Financial literacy also contributes to financial resilience, enabling individuals to withstand economic shocks and uncertainties. A study by Zhang and Li (2024) using data from the China Household Finance Survey revealed that financial literacy significantly improves household financial resilience by enhancing wealth accumulation and risk mitigation strategies. Furthermore, financial literacy influences financial well-being through its effect on financial behaviors. Brown and Taylor (2024) found that higher levels of financial literacy and confidence lead to more responsible financial behavior, which in turn positively impacts financial well-being.

The integration of information and communication technologies (ICTs) has further amplified the importance of financial literacy. In Pakistan, Ahmed et al. (2023) observed that financial literacy, combined with ICT adoption, positively influences household financial decisions, including savings, retirement planning, and financial market participation. This underscores the need for digital financial literacy in an increasingly digitalized financial environment.

Despite its significance, financial literacy levels remain low in many regions, prompting calls for comprehensive financial education initiatives. Rehman and Mia (2024) conducted a systematic review identifying various determinants of financial literacy, including demographic, socio-economic, psychological, and technological factors. They advocate for targeted financial education programs that address these diverse influences to enhance financial literacy effectively.

Hence, financial literacy is a critical component of individual and societal financial health. It empowers individuals to make informed financial decisions, promotes economic stability, and contributes to poverty reduction. As the financial landscape evolves, fostering financial literacy through education and policy interventions remains imperative.

Financial Inclusion

Financial inclusion refers to the process of ensuring that individuals and businesses have access to useful and affordable financial products and services that meet their needs—such as transactions, payments, savings, credit, and insurance—delivered in a responsible and sustainable way. This concept emphasizes not only access but also the usage and quality of financial services, aiming to integrate all segments of society, especially the underserved and vulnerable, into the formal financial system (World Bank, 2020).

The significance of financial inclusion lies in its potential to drive economic growth, reduce poverty, and promote financial stability. For instance, a study analyzing data from G20 countries found that financial inclusion positively impacts financial efficiency and sustainability in the long run, contributing to overall economic development (Khan et al., 2022). Similarly, research focusing on Sub-Saharan Africa highlighted that digital financial services have a substantial role in expanding access to financial resources, thereby fostering economic growth and reducing poverty levels.

In the Nigerian context, financial inclusion has been instrumental in empowering women economically. A study utilizing data from the 2018 Nigerian Demographic and Health Survey revealed that women who use mobile phones for financial transactions have higher odds of making decisions regarding their earnings and healthcare, indicating enhanced economic empowerment through digital financial inclusion (Funlayo et al., 2024).

Moreover, financial inclusion has been linked to improved health outcomes. A global study demonstrated that increased financial inclusion significantly predicts better population health metrics, such as higher life expectancy and lower infant mortality rates, by enabling individuals to afford nutritious food, better sanitation, and enhanced access to healthcare services (Koomson et al., 2024).

Despite these benefits, challenges persist. In Ethiopia, for example, disparities in financial inclusion are evident, with factors such as income level, education, and urban-rural divide influencing access to financial services. Addressing these demand-side determinants is crucial for achieving universal financial inclusion (Tiriki& Faye, 2023).

To overcome such barriers, innovative approaches are being employed. Mary Ellen Iskenderian, President and CEO of Women's World Banking, emphasizes the importance of designing financial products that cater to women's specific needs and collaborating with local intermediaries to facilitate access. She highlights that technological advancements, like mobile money, have significantly increased women's financial inclusion, especially during the COVID-19 pandemic (Iskenderian, 2025).

Hence, financial inclusion is a multifaceted concept that plays a pivotal role in promoting economic growth, reducing poverty, and enhancing individual well-being. While significant progress has been made, especially through digital financial services, continued efforts are necessary to address existing disparities and ensure that all individuals and businesses can participate fully in the financial system.

Barriers to Fintech Usage

The adoption of financial technology (fintech) services has the potential to enhance financial inclusion and economic empowerment. However, several barriers hinder the widespread usage of fintech, particularly in developing countries.

A significant barrier to fintech adoption is the lack of digital literacy and awareness among potential users. In Southern Nigeria, low levels of digital literacy impede the uptake of fintech services, as many individuals are unfamiliar with digital platforms or harbor negative perceptions about technology-driven financial services. Similarly, in India, street vendors and hawkers face challenges such as lack of awareness, financial literacy, and perceived ease of use, which deter them from adopting fintech solutions (Bakhshi et al., 2024).

Trust issues and perceived risks associated with fintech platforms also act as deterrents. Users often express concerns about the security of mobile banking applications due to increasing cybersecurity threats, including data breaches and cyber-attacks. These concerns affect users' intentions to adopt and use fintech services (Apaua & Lallie, 2022). In the United Arab Emirates, factors such as lack of trust, perceived risk, and social influence have been identified as significant barriers to fintech adoption (Bouteraa et al., 2023).

Regulatory hurdles and inadequate infrastructure further complicate fintech adoption. In Nigeria, the absence of a comprehensive legal framework regulating digital payments creates uncertainties that hinder the growth of fintech services (Aidonojie et al., 2022). Moreover, insufficient infrastructure, such as unreliable internet connectivity and power supply, poses significant challenges to the effective use of fintech platforms.

The rise in cybersecurity threats presents another barrier to fintech usage. Phishing, malware, and other cyber-attacks not only compromise user data but also erode trust in digital financial services. A systematic review highlights that these threats significantly influence the adoption and growth of digital banking, necessitating robust security measures and regulatory compliance to mitigate risks (Waliullah et al., 2025).

Socioeconomic factors, including low income, social marginalization, and lack of education, also impede fintech adoption. Individuals from lower socioeconomic backgrounds often lack access to necessary resources, such as smartphones or internet services, and may be unaware of available fintech solutions. This digital divide underscores the need for inclusive strategies to promote fintech usage among marginalized populations.

Therefore, addressing these multifaceted barriers requires a collaborative effort involving policymakers, financial institutions, and technology providers. Initiatives aimed at enhancing digital literacy, building trust through robust security measures, establishing clear regulatory frameworks, and improving infrastructure are essential to facilitate the widespread adoption of fintech services.

Rural Financial Services

Rural financial services encompass a spectrum of financial products and delivery mechanisms tailored to meet the unique needs of rural populations, particularly smallholder farmers and low-income households. These services include savings accounts, credit facilities, insurance products, and payment systems designed to support agricultural activities, manage risks, and promote economic development in rural areas.

Access to financial services in rural regions is often limited due to various factors, including geographical remoteness, inadequate infrastructure, and low levels of financial literacy. In Nigeria, for instance, studies have shown that illiteracy and unemployment significantly

hinder financial inclusion in rural areas, emphasizing the need for targeted interventions to improve education and employment opportunities (Williams et al., 2023).

Informal credit systems play a crucial role in rural economies where formal financial institutions are scarce. Research conducted in the mountainous regions of Pakistan revealed that social networks, such as relationships with fellow farmers and neighbors, are vital for accessing informal credit, highlighting the importance of community-based financial solutions (Ali et al., 2024).

Digital financial services have emerged as a promising avenue to bridge the financial inclusion gap in rural areas. However, challenges such as low digital literacy, limited trust in digital platforms, and inadequate infrastructure continue to impede the adoption of these services. A study analyzing digital inclusive finance policies noted that while digital financial services offer significant opportunities, their adoption remains limited in rural regions due to these persistent barriers (Li et al., 2024).

In the context of agriculture, access to financial services is critical for enhancing productivity and efficiency. An analysis of rural bank credit access among smallholder cassava farmers in Ghana demonstrated that access to credit significantly improves technical efficiency, underscoring the role of financial services in agricultural development.

Gender disparities also affect access to rural financial services. In Uganda, women face multiple barriers, including limited financial literacy, cultural norms, and lack of tailored financial products, which restrict their participation in agribusiness and access to financial services.

To address these challenges, integrated approaches that combine technological innovations with community engagement and policy support are essential. For example, integrating rural banks with mobile communication infrastructure can enhance the delivery of financial services to rural poor communities, facilitating greater financial inclusion.

Therefore, enhancing rural financial services requires a multifaceted strategy that addresses infrastructural deficits, promotes financial literacy, leverages technology, and considers the socio-cultural dynamics of rural communities. Such comprehensive efforts are vital for fostering inclusive economic growth and improving the livelihoods of rural populations.

Theoretical Review

This study was theoretically underpinned on Diffusion of Innovations Theory.

Diffusion of Innovations Theory

The Diffusion of Innovations Theory by Everett Rogers (1962) explains how new technologies or ideas spread within a community over time. It identifies five stages of adoption: knowledge (awareness of the innovation), persuasion (forming an opinion), decision (choosing to adopt or reject), implementation (using the innovation), and confirmation (reinforcing the decision). The theory highlights factors influencing adoption, such as perceived benefits, compatibility, and ease of use. This framework helps understand how fintech spreads in rural Nigeria, the barriers to its adoption, and how it can enhance economic empowerment and financial literacy.

Relevance to the Study

i. The theory helps explain how rural populations in Nigeria learn about fintech and progress through stages before fully adopting it, which is crucial for assessing fintech's impact on economic empowerment.
ii. It highlights why certain fintech services may face resistance in rural communities due to perceived complexity or incompatibility with local practices, directly relating to the study's focus on barriers.
iii. By understanding how knowledge and persuasion stages affect acceptance, the theory sheds light on why financial literacy levels vary among rural users of fintech.
iv. The theory offers a framework for developing interventions that target specific adoption stages—such as increasing awareness or reducing complexity—to improve fintech usage.
v. As the theory considers implementation and confirmation, it supports analysis of how sustained fintech use contributes to economic empowerment and financial inclusion in rural areas.
vi. Insights from the theory can inform policy makers and stakeholders on designing programs that facilitate smooth diffusion and acceptance of fintech innovations.

Empirical Review

Adukke, Mohammed and Usman (2024) investigated the effect of financial literacy on the agricultural value chain in Giwa Local Government Area, Kaduna State. Utilizing a stratified random sampling method, they surveyed 74 farmers and analyzed data using descriptive statistics and regression analysis. The study found a significant positive impact of financial literacy on agricultural value chain activities, highlighting the importance of financial education in enhancing agricultural productivity.

Etuk, Aripko and James (2025) explored the factors influencing consumers' adoption of mobile financial technology services in Calabar, Nigeria. Applying the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, they conducted a cross-sectional survey with 357 respondents and analyzed the data using multiple linear regression. Their findings indicated that performance expectancy, effort expectancy, social influence, and facilitating conditions significantly influenced the adoption of mobile fintech services, suggesting that addressing these factors could enhance fintech adoption in rural areas.

Hassan and Utulu (2022) examined the socio-economic and technological factors influencing financial inclusion among indigenous peoples in Bauchi State, Nigeria. Through a mixed-methods approach, they collected data from indigenous communities and analyzed it using both qualitative and quantitative techniques. The study revealed that factors such as education, income levels, and access to technology significantly affected financial inclusion, underscoring the need for targeted fintech interventions to address these disparities in rural communities.

Onuegbu, Agbamu, Anyakoha and Anunike (2025) assessed communication, awareness, and acceptance of digital banking amidst the cash crunch in Southeast and South-South Nigeria. Conducting a survey with 385 respondents, they analyzed the data using descriptive statistics. The study found that while awareness of digital banking was moderate, acceptance and usage increased following the cash crunch, with communication playing a significant role in enhancing digital banking adoption in these regions.

Sajuyigbe, Odetayo, and Adeyemi (2020) conducted a descriptive survey of 240 small-scale business operators in Southwest Nigeria to evaluate how financial literacy and inclusion influence business performance. Using questionnaires analyzed with Pearson correlation and

OLS regression, they discovered that financial literacy and access to financial services significantly boost business outcomes, although many operators lacked critical financial knowledge and microfinance access.

Benedict, Wilson, Ugwu and Ibe (2024) surveyed 480 rural farmers using a standardized financial literacy questionnaire. They employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the data, revealing that higher financial literacy levels improved farmers' access to credit and increased investment in agriculture. However, weaknesses were found in farmers' understanding of numeracy and compound interest concepts.

Chukwu, Akunna and Anaike (2024) analyzed secondary data from the Central Bank of Nigeria and United Nations reports using Auto-Regressive Distributed Lag (ARDL) models to assess fintech's impact on economic development. Their results showed fintech's influence on Nigeria's Human Development Index was insignificant, suggesting the urgent need to improve fintech availability and financial literacy programs in rural communities.

Obiya (2024) utilized a mixed-methods research design framed by Diffusion of Innovation Theory to study blockchain and data analytics' role in financial inclusion. The findings demonstrated these technologies lower transaction costs, enhance trust, and provide secure, transparent financial services that significantly benefit Nigeria's unbanked rural populations, contributing to broader economic empowerment.

Akeju, Adeleke, Ani and Igbolekwu (2024) applied the Arellano–Bond Generalized Method of Moments (GMM) regression to evaluate women's digital financial inclusion and its contribution to economic growth in Nigeria. Their econometric analysis indicated that digital payment use and ownership of debit/credit cards by women positively and substantially influence national economic growth, highlighting fintech's empowerment potential.

Chinelo and Ayodeji (2022) conducted a comparative survey of 479 women agripreneurs in Southern Nigeria to investigate digital financial service access. Their results showed that women with digital financial access experienced improved credit availability, better business performance, and increased opportunities, compared to those without access, emphasizing fintech's critical role in promoting women's economic empowerment in rural settings.

3. Methodology

Research Design

This study employed a survey research design to collect quantitative data from participants. The survey method was chosen because it allowed for the systematic collection of data regarding the perceptions and experiences of individuals concerning fintech's impact on economic empowerment and financial literacy in rural Nigeria.

Area of Study

The research was conducted in Nsukka Local Government Area of Enugu State, Nigeria, focusing on rural settlements surrounding the Nsukka urban center. These communities were chosen due to their limited access to formal banking services but increasing exposure to mobile and digital financial technologies. The area presents a relevant context for studying the relationship between fintech adoption, economic empowerment, and financial literacy.

Population

The target population comprised adult residents of rural communities in Nsukka Local Government Area, Enugu State, who had some level of interaction with fintech services such

as mobile banking, digital wallets, or microfinance apps. The rural segment of Nsukka Local Government Area is estimated to have a population size of 5,000 individuals.

Sample Size

Using the Taro Yamane formula for sample size determination:

$$n = \frac{N}{1+N(e)^2}$$

Where:

- n = sample size
- N = population size (5,000)
- e = margin of error (0.05)

Applying the values:

$$n = \frac{5000}{1+5000(0.05)^2}$$

$$n = \frac{5000}{1+5000(0.0025)}$$

$$n = \frac{5000}{1+12.5}$$

$$n = \frac{5000}{13.5}$$

$$n = \mathbf{370}$$

Thus, a sample size of **370** respondents was derived for the study.

Sampling Technique

A simple random sampling technique was used to select participants from the rural population. This method ensured that every individual in the target population had an equal chance of being included in the study, reducing sampling bias.

Instrument for Data Collection

Data was collected using a structured questionnaire developed by the researchers. The questionnaire comprised closed-ended questions designed to measure respondents' use of fintech services, levels of economic empowerment, and financial literacy.

Validity of Instrument

To ensure the validity of the questionnaire, a pilot test was conducted with 30 respondents from a similar rural community not included in the final sample. Expert review was also sought from academics specializing in fintech and rural development to verify content relevance and clarity.

Reliability of Instrument

The reliability of the questionnaire was tested using Cronbach's alpha coefficient during the pilot phase. The instrument yielded a reliability coefficient of 0.82, indicating good internal consistency.

Method of Data Collection

Data collection involved administering the questionnaire through face-to-face surveys and in-depth interviews with selected participants to complement and enrich the quantitative data. Trained research assistants facilitated the survey to ensure clear understanding of questions and accurate recording of responses.

Method of Data Analysis

Data collected were analyzed using descriptive statistics and frequency tables. Descriptive statistics summarized demographic characteristics and key variables, while frequency tables presented the distribution of responses related to fintech use, economic empowerment, and financial literacy among the respondents.

4. Data Presentation and Analysis

Table 1: How often do you use fintech services (such as mobile banking, digital wallets, or online lending) for your economic activities?

Options	Frequency (n)	Percentage (%)
Daily	85	22.97
Weekly	110	29.73
Monthly	75	20.27
Rarely	60	16.22
Never	40	10.81
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' views on how often they use fintech services. Most participants indicated that they engage with fintech on a weekly basis, representing nearly 30% of the sample. Those who use fintech daily accounted for almost 23%, highlighting a strong regular engagement among some individuals. About 20% of respondents reported monthly use, while around 16% said they rarely use fintech services. A smaller group, roughly 11%, have never used fintech platforms. These results reveal varying levels of fintech adoption within the rural community, suggesting both growing acceptance and some persistent barriers to regular usage.

Table 2: To what extent has using fintech services improved your ability to generate income or manage your finances?

Options	Frequency (n)	Percentage (%)
Very much improved	95	25.68
Somewhat improved	140	37.84
No change	80	21.62
Slightly worsened	30	8.11
Significantly worsened	25	6.76
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' views on how fintech adoption has influenced their economic empowerment, specifically regarding their ability to generate income or manage finances. A significant portion of respondents, nearly 38%, reported that fintech services have somewhat improved their financial management or income generation. Additionally, about 26% stated that their situation has very much improved due to fintech usage. However, around 22% of respondents felt there was no change in their financial status. A smaller

percentage, roughly 14%, indicated a negative impact, with some reporting slight or significant worsening. Overall, these results suggest that fintech adoption positively influences economic empowerment for many rural users, although some challenges remain.

Table 3: Since you started using fintech services, how has your understanding of managing money (e.g., saving, budgeting, credit) changed?

Options	Frequency (n)	Percentage (%)
Greatly improved	100	27.03
Moderately improved	130	35.14
No change	90	24.32
Slightly decreased	25	6.76
Significantly decreased	25	6.76
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' perceptions of how their financial literacy has changed since they began using fintech services. The majority, approximately 62%, indicated that their understanding of money management has improved, with about 27% reporting a great improvement and 35% noting moderate improvement. Conversely, nearly a quarter of respondents felt that their financial literacy remained unchanged. A smaller segment, roughly 14%, experienced a decrease in their financial knowledge. These findings indicate that fintech usage generally contributes positively to enhancing financial literacy among rural users, though some individuals may not experience these benefits or face difficulties adapting to fintech tools.

Table 4: How confident are you in using digital financial tools (apps, mobile money, online payments) to make informed financial decisions?

Options	Frequency (n)	Percentage (%)
Very confident	90	24.32
Somewhat confident	120	32.43
Neutral	80	21.62
Slightly unconfident	50	13.51
Not confident at all	30	8.11
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' level of confidence in using digital financial tools to make financial decisions. About 32% of the participants reported being somewhat confident, while approximately 24% described themselves as very confident users of fintech platforms. A considerable portion, around 22%, remained neutral regarding their confidence levels. Meanwhile, nearly 14% expressed slight unconfidence, and roughly 8% admitted to having no confidence at all. These results reveal that while many rural users are comfortable navigating fintech tools, there remains a significant group who are hesitant or unsure, which could influence the overall effectiveness of fintech in promoting financial literacy and empowerment.

Table 5: What do you consider the biggest challenge to using fintech services effectively in your community?

Options	Frequency (n)	Percentage (%)
Lack of internet/network	130	35.14
Limited knowledge/training	110	29.73
High transaction costs	60	16.22
Distrust of digital platforms	50	13.51
Other (specify)	20	5.41
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' perceptions of the key barriers to effective fintech use in their community. The majority of respondents, about 35%, identified poor internet or network coverage as the main challenge. Limited knowledge or training on fintech usage was also a significant barrier, affecting nearly 30% of the participants. High transaction costs and distrust of digital platforms were cited by 16% and 14% of respondents respectively. A small portion, roughly 5%, mentioned other unspecified challenges. These findings indicate that infrastructural issues and lack of user education are major obstacles to fintech adoption and effective utilization in rural Nigeria.

Table 6: Which of the following would most improve your use of fintech services?

Options	Frequency (n)	Percentage (%)
More financial literacy training programs	140	37.84
Better internet and network access	115	31.08
Reduced fees for fintech transactions	60	16.22
Increased trust and security measures	40	10.81
Availability of local support centers	15	4.05
Total	**370**	**100**

Source: Field Survey, 2025

This table illustrates the respondents' views on factors that could improve their use of fintech services. The most frequently chosen option, selected by nearly 38% of respondents, was the need for more financial literacy training programs. This highlights the importance of education in empowering rural users to effectively utilize fintech. Improved internet and network access was the second most cited factor, with about 31% emphasizing its importance. Lower transaction fees were also a concern for 16% of participants. Meanwhile, increased trust and security measures and local support centers were less frequently mentioned but still notable barriers. These insights suggest that addressing educational and infrastructural gaps is crucial to enhancing fintech adoption and effectiveness in rural Nigeria.

5. Summary of Findings, Conclusion and Recommendations

Summary of Findings

The following summarizes the key findings:

i. The data indicated that fintech adoption among rural Nigerians is fairly widespread, with 29.73% of respondents using fintech services weekly and 22.97% daily. Meanwhile, 20.27% used fintech monthly, 16.22% rarely, and 10.81% never. This distribution reflects a moderate to high level of engagement overall, yet also highlights a substantial

minority that remains infrequent or non-users, suggesting uneven penetration across the community.

ii. Most respondents reported fintech positively impacting their economic empowerment and financial literacy. Specifically, 37.84% indicated fintech "somewhat improved" their income management ability, and 25.68% reported "very much improved." Regarding financial literacy, 35.14% experienced a moderate improvement and 27.03% a great improvement in managing money. However, some respondents reported no change or a decrease, pointing to gaps in effectiveness.

iii. Key barriers identified include poor internet/network access (35.14%), limited knowledge or training (29.73%), and high transaction costs (16.22%). Distrust in digital platforms was also noted (13.51%). To enhance fintech use, respondents prioritized more financial literacy programs (37.84%) and better internet access (31.08%), underscoring that both educational and infrastructural challenges limit fintech's full potential in rural areas.

Conclusion

The study demonstrates that fintech adoption among rural populations in Nigeria is growing, with a considerable number of individuals engaging with digital financial services regularly. This adoption has positively influenced economic empowerment and financial literacy for many users, enabling better income management and enhanced understanding of financial concepts. However, the benefits are not uniform across all respondents, highlighting that some rural dwellers have yet to fully realize fintech's potential. Key barriers such as inadequate internet infrastructure, limited user knowledge, and concerns about transaction costs and trust hinder wider and more effective utilization of fintech services. Addressing these challenges through improved digital infrastructure and targeted financial literacy programs is essential for maximizing fintech's role in promoting financial inclusion and economic development in rural Nigeria.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

i. To enhance the positive impact of fintech on rural populations, government agencies and fintech providers should collaborate to implement widespread financial literacy and digital skills training. This will empower users to confidently navigate fintech platforms, improving economic empowerment and financial management.

ii. Investment in reliable internet connectivity and mobile network coverage in rural areas is crucial. Policymakers and telecommunications companies need to prioritize expanding digital infrastructure to reduce access barriers, enabling more residents to effectively use fintech services.

iii. Fintech companies should consider lowering fees and enhancing the security features of their platforms to build trust among rural users. Clear communication about safety measures and transparent pricing will encourage greater adoption and sustained use of digital financial tools.

References

Ahmed, S., Khan, M. A., & Ali, R. (2023). Impact of financial literacy on financial inclusion and household financial decisions: Exploring the role of ICTs. *International Studies of Management & Organization, 54*(1), 1–15. https://doi.org/10.1080/00208825.2023.2281207

Akeju, K. F., Adeleke, O. K., Ani, J. I., &Igbolekwu, C. O. (2024). Women digital financial inclusion and economic growth in Nigeria. *Sustainability Quest, 1*(1), 1–12. https://doi.org/10.36923/SQ.v1i1.240

Amah, O. E., Kolo, V., Aigbona, C., Baderinwa, R., Okoro, C., & Akanji, M. (2024). Economic empowerment of women domestic workers: Role of digital financial services. *South African Journal of Information Management, 26*(1). https://doi.org/10.4102/sajim.v26i1.1884

Arner, D. W., Buckley, R. P., Zetzsche, D. A., &Veidt, R. (2020). Sustainability, Fintech and financial inclusion. *European Business Organization Law Review, 21*(1), 7–35. https://doi.org/10.1007/s40804-020-00183-y

Adukke, F. S., Mohammed, T. J., & Usman, A. A. (2024). Effect of financial literacy on agricultural value chain in Nigeria: A case study of Giwa Local Government Area, Kaduna State. *Nigerian Journal of Rural Finance and Entrepreneurship, 2*(1), 1–12. https://journals.abu.edu.ng/index.php/njrfe/article/view/507

Benedict, I. O., Wilson, E., Ugwu, C. N., &Ibe, C. B. (2024). Investing in rural agriculture in the face of innovative financial services: Does financial literacy matter in Nigeria? *SAGE Open, 14*(1), 1–18. https://doi.org/10.1177/21582440241244685

Boukis, A. (2019). Exploring the role of customer empowerment in the adoption of self-service technologies in retail banking. *International Journal of Bank Marketing, 37*(2), 579–596. https://doi.org/10.1108/IJBM-02-2018-0032

Brown, M., & Taylor, K. (2024). Financial literacy, confidence and well-being: The mediating role of financial behavior. *Journal of Business Research, 182*, 114791. https://doi.org/10.1016/j.jbusres.2024.114791

Chinasa, W. E., & Julius, W. B. (2023). Financial literacy and mobile banking nexus in South-South Nigeria: Implication for technology and inclusive finance. *International Journal of Research and Analytical Reviews.*https://www.researchgate.net/publication/374665419

Chinelo, U. V., &Ayodeji, E. P. (2022). Leveraging digital technology for financial inclusion of women agripreneurs in Southern Nigeria. *F1000Research, 11*, 704. https://doi.org/10.12688/f1000research.122123.3

Chukwu, K. O., Akunna, R. C., &Anaike, C. L. (2024). Financial technology and economic development of Nigeria. *African Banking and Finance Review Journal, 10*(10), 117–134. https://www.abfrjournal.com/index.php/abfr/article/view/165

Etuk, I. U., Aripko, N. N., & James, E. E. (2025). Factors influencing consumers' adoption of mobile financial technology (FinTech) services in Calabar, Nigeria. *African Journal of Management and Business Research, 18*(1), 131–153. https://doi.org/10.62154/ajmbr.2025.018.010614

Eyisi, A. S., Okeke, T. C., & Anazia, A. E. (2023). Determinants of Fintech Adoption in Nigeria: Evidence from UTAUT. *Afropolitan Journal of Management and Business Research, 13*(4), 44–55. https://afropolitanjournals.com/index.php/ajmbr/article/view/614

Fanta, A. B., &Makina, D. (2019). The relationship between technology and financial inclusion: Cross-sectional evidence. *African Development Review, 31*(3), 305–317. https://doi.org/10.1111/1467-8268.12388

Funlayo, O., Adeola, A., & Chukwuma, E. (2024). Financial digital inclusion and women's empowerment in the Fourth Industrial Revolution: Evidence from Nigeria. *Sustainability Quest.*https://icrp.org.uk/journal/index.php/Sustainability/article/view/Funlayoetal-2024-1

Hassan, A., &Utulu, S. C. A. (2022). Socio-economic and technological factors influencing financial inclusion among indigenous peoples in Bauchi State, Nigeria. *arXiv.*https://arxiv.org/abs/2209.11578

International Monetary Fund. (2023). Nigeria—Fostering financial inclusion through digital financial services. *Selected Issues Papers, 2023*(020). https://www.elibrary.imf.org/view/journals/018/2023/020/article-A001-en.xml

Iskenderian, M. E. (2025). Mary Ellen Iskenderian's mission to ensure one billion women have bank accounts. *Reuters.*https://www.reuters.com/sustainability/society-equity/mary-ellen-iskenderians-mission-ensure-one-billion-women-have-bank-accounts

Koomson, I., Ansong, D., Okumu, M., &Achulo, S. (2022). Effect of financial literacy on poverty reduction across Kenya, Tanzania, and Uganda. *Global Social Welfare, 10*(1), 93–103. https://doi.org/10.1007/s40609-022-00259-2

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

Mambosho, P. S., Chole, G. S., &Kironyi, L. (2024). An assessment of the role of economic empowerment schemes on poverty reduction among youth and women groups: A case of the Arusha Region, Tanzania. *Asian Journal of Economics, Business and Accounting, 24*(8), 293–303. https://doi.org/10.9734/ajeba/2024/v24i81457

Nwankwo, A., & Ibrahim, C. (2023). The impact of Fintech on financial inclusion in Southern Nigeria. *International Journal of Research and Innovation in Social Science.*https://rsisinternational.org/journals/ijriss/articles/the-impact-of-fintech-on-financial-inclusion-in-southern-nigeria/

Obiya, S. O. (2024). Leveraging blockchain and data analytics to enhance financial inclusion in Nigeria: A study of blockchain-based information system. *International Journal of Research and Scientific Innovation, 11*(11), 547–557. https://doi.org/10.51244/IJRSI.2024.1110047

OECD. (2023). Financial literacy education: What it is and how it is needed for Cambodian students. *Cambodian Journal of Educational Research,* 61–70. https://www.researchgate.net/publication/382819835

Onuegbu, O. C., Agbamu, B. O., Anyakoha, B. U., &Anunike, O. W. (2025). Communication, awareness and acceptance of digital banking amidst cash crunch in Southeast and South-South, Nigeria. *arXiv.*https://arxiv.org/abs/2504.10546

Osei-Assibey, E., Boateng, E., &Yeboah, T. (2024). Mobile FinTech services in Sub-Saharan Africa: A systematic literature review and meta-analysis. *Research Policy, 53*(3), 104865. https://doi.org/10.1016/j.respol.2024.104865

Pham, T. T., & Ho, J. C. (2022). Investigating the determinants of FinTech adoption in SMEs: A behavioral model approach. *Financial Innovation, 8*(1), 45. https://doi.org/10.1186/s40854-022-00357-2

Rehman, K., & Mia, M. A. (2024). Determinants of financial literacy: A systematic review and future research directions. *Future Business Journal, 10*(1), 75. https://doi.org/10.1186/s43093-024-00365-x

Sajuyigbe, D. A. S., Odetayo, T. A., &Adeyemi, A. Z. (2020). Financial literacy and financial inclusion as tools to enhance small scale businesses' performance in Southwest,

Nigeria. *Finance & Economics Review, 2*(3), 1–13. https://doi.org/10.38157/finance-economics-review.v2i3.164

Sibanda, E., Muzavazi, T. A., Setoboli, T., & Tshuma, N. (2025). Assessing the impact of financial literacy on savings behavior in the informal sector. *International Journal of Research and Innovation in Social Science, 9*(1), 2889–2899. https://doi.org/10.47772/IJRISS.2025.9010235

Tech Herfrica. (2023). *Wikipedia.*https://en.wikipedia.org/wiki/Tech_Herfrica

Zhang, Y., & Li, H. (2024). Financial literacy and household financial resilience. *Finance Research Letters, 63*, 105378. https://doi.org/10.1016/j.frl.2024.105378